Local 11/85 (1.00)

CRAFTSMEN OF COLONIAL AMERICA

by Frances Carnahan

Photographs of craftsmen, tools, and objects were taken by Jeff Byers at the following: Colonial Williamsburg, Williamsburg, Virginia; Jamestown Glasshouse, Colonial Historical Park, Jamestown, Virginia; William Penn Memorial Museum, Harrisburg, Pennsylvania. Additional photographs courtesy Old Sturbridge Village and The Early American Society, Inc.

John Smith, finding the New World colony of Jamestown in danger of failing, sent an angry letter to his superiors at the Virginia Company in England: "when you sende againe, I intreat you rather send but thirty Carpenters, husbandmen, Gardiners, fishermen, blacksmith . . . than a thousand (gentlemen) such as we have."

In early colonial times, craftsmen were not just artisans who could turn out fine furniture and graceful teapots, but people with survival skills upon which life itself depended. The Jamestown settlement came close to ruin for lack of skills and the will to use them. While there were craftsmen (George Brent, a blacksmith, was among the first who waded ashore in 1607), the greatest number of that hapless group were "gentlemen" who either could not or would not work.

However ill-suited the Plymouth Pilgrims were to their "stern and rock bound shore" when they landed in December 1620, thirteen years after the founding of Jamestown, they were not plagued with gentlemen. The very names of the signers of the Mayflower Compact indicated that their forebears were artisans: Fuller, Cooke, Tinker, Turner, Gardiner, Carver. William Bradford was a weaver; John Alden, a cooper; Isaac Allerton, a tailor; William Brewster was a yoeman who had learned printing in Holland. These Puritan artisans, further influenced by their contact with the industrious Dutch in Holland, would not tolerate idleness.

Despite the "great sickness" that depleted their ranks that first winter—only fifty survived until spring—land was assigned to each family according to its size, and "thus made all hands very industrious." The leaders of the little community realized that to survive, they must quickly become self-sufficient by acquiring the skills they lacked and by urging additional skilled craftsmen to join them.

A sawyer arrived in 1624, as did a ship's carpenter, "an honest and very industrious man" who quickly built two strong shallops [small boats], a "lighter," and hewed timber for two ketches before he caught fever and died. With these boats the Pilgrims established fur-trading along the Kennebeck River, Cape Cod, and in Connecticut, enabling them to eventually pay off their unscrupulous London backers.

Not every newcomer to Plymouth Colony was successful: A salter, an "ignorant, foolish, self willed fellow" promised to build a salt works, but "could not do anything but boil salt in pans, and yet would make them that joined him believe there was so great a mystery in it as was not easy to be attained." He was dispatched to Cape Ann the next year, but before the summer was out he had succeeded in burning down the salt works, pans and all, and "this put an end to that changeable business."

Most of the Puritans who came to New England in the 1630's were middle class farmers and skilled artisans getting away from both religious persecution and an inflated economy in England. When Newbury, Massachusetts, was settled in 1635, among those receiving town lots were a malter, a physician, a dyer, a glover, tanners, shoemakers, wheelwrights, blacksmiths, wool and linen weavers, a saddler, a sawyer, a schoolmaster, and two parsons. There were only eight gentlemen. Add to this group a number of yoemen to supervise the unskilled among them at farming, and it amounted to a self-sufficient community.

From the beginning, New England developed as a series of towns and villages surrounded by small farms. Some were established by edict and carefully planned from the time the first people arrived; others grew up naturally around mills and on navigable streams. The towns became centers for trade and attracted craftsmen who prospered according to their industry and the size of the population. In a town of some size, a skilled artisan might be able to support himself, a journeyman, and several apprentices with his trade. In a small village, he likely had to supplement his income by farming or some other unrelated activity. In remote areas, where farmers were accustomed to buying little more than salt and a few tools, itinerant craftsmen often appeared in the spring to ply their trades.

Except in cities like Annapolis, Charlestown, and Williamsburg, the plantation economy in the southern colonies offered little opportunity for independent craftsmen. Skilled work was essential to the operation of a large plantation, which was in effect a self-contained village. But more often than not, the planter had slaves or indentured servants to perform the necessary tasks. Nomini Hall, Robert Carter's estate in Virginia, had workers, both black and white, trained as coopers, carpenters, blacksmiths, cabinetmakers, weavers, millers, and bricklayers, and supported artisans specializing in other skills. Their services, especially those of the blacksmith, were available to the surrounding community in return for cash or produce.

When William Penn laid out his neat grid plan for the city of Philadelphia in 1682, he set aside a portion of the city for the Free Society of Traders. This enterprising group built brick kilns, tanneries, a glass works, and were soon competing with the New England colonies for trade with the West Indies in locally built ships. An Irish Quaker in Philadelphia wrote to his sister at home, urging her to join him, calling his new land "the best country for working folk and tradesmen in the world . . . a man will Sooner Earn a suit of Clothes here than in Ireland, by Reason workman's Labor is so Dear."

> *Strangers are welcome because there is room for them all . . . Tolerably good Workmen in any of those mechanic Arts are sure to find Employ, and to be well paid for their Work, there being no Restraints preventing Strangers from exercising any Art they understand, nor any Permission necessary.*
>
> *Benjamin Franklin,*
> *Information to those who*
> *would remove to America*

At the end of the 17th century, Europe was still locked into a restrictive system of craft guilds and city companies, each protective of its rights and inhospitable to newcomers. The system was weakening with the introduction of new industries, but was still strong enough to enjoy the protection of law and custom. No such restrictions held in America, where a shortage of skilled artisans created a freedom of choice, making it possible for any man of ability to pursue his chosen trade. A few attempts were made to establish craft guilds (the last in Philadelphia, in 1718), but they were not successful in the new, more fluid society.

An apprentice system, a way of learning a trade that came out of the medieval guilds, did find its place, although it was never so rigid as in Europe, where a surplus of labor made any apprenticeship desirable. The situation was reversed in America. Master craftsmen took apprentices without charging a fee and sometimes paid the parents of the boy or girl who was "bound out." The orphaned and the illegitimate were sometimes compelled to apprentice themselves to relieve the town of the burden of caring for them.

The terms of the apprenticeship (girls were generally bound out in domestic service) were set out in a contract of indenture, agreed to by the master and a boy's guardian. For the stipulated term, usually four or five years, rarely the seven years common in Europe, the boy worked under the direction of the master, performing menial tasks as he learned his trade. In return, he was entitled to his keep, religious training, and the rudiments of a secular education, either taught by the master or paid for by him. A Boston newspaper advertised "Mr. Pelham's Writing & Arithmetical School . . . open from Candlelight till nine in the evening . . . for benefit of those employ'd in Business all daye," which seems to indicate the order of importance given to work and learning.

The arrangement worked well when the boy and the master both lived up to the terms of the agreement, but masters often complained of the apprentice's laziness and drunkenness, and many apprentices chafed under the stern discipline of their masters. The courts stood ready to back any boy who could prove he had been mistreated; some boys ducked a bad situation by absconding—Ben Franklin was one—and newspapers frequently carried advertisements for runaways. At the end of the contract period, if things had gone well, the master countersigned the indenture, making the boy a journeyman, free to work at his trade wherever he pleased.

Opportunities were good for the journeyman willing to put in the long hours required of him—twelve hours a day, six days a week—in some trades, fourteen or even sixteen hours. The pay was generally not high but included board and lodging, and if he was frugal, the journeyman could hope to eventually have his own shop. Such was not the lot of slave journeymen in the South. Some became expert in their craft only to be hired out by owners who were only too willing to accept their wages.

"More use of hand and body than of mind," the Old World definition of a "mechanick," hardly described the master craftsman of colonial America. As both manufacturer and retailer, he ran his shop, looked after the workers (if he had any) who usually lived with him, and got them out of jail if necessary, purchased raw materials, and coped with complicated finances, which often involved barter and "country pay." (One blacksmith's account book reveals that in two months, he received in lieu of cash: "1 pr boots, cloth, 20 bush cole, apples, 1 pig, ½ cord wood, and 24½ lb old iron.")

Competition, especially for labor, was keen, and the master frequently pursued several occupations to support his household. One of the most famous colonial craftsmen, that "rude mechanick" Paul Revere, was a gold and silversmith, a proficient copper-engraver, a member of the Massachusetts militia, the founder of a powder mill, an outrageous caricaturist, and he still found time to help forment a revolution.

the Blacksmith

Iron seemeth a simple metal,
but in its nature are many mysteries.

Joseph Glanvill,
17th-century clergyman

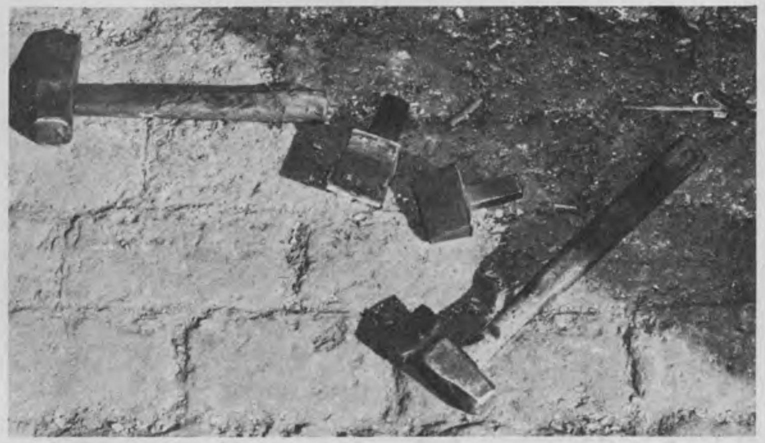
For thousands of years, the blacksmith reigned at his forge as the king of craftsmen, capable of producing anything from a weapon to a horseshoe. His raw material, wrought iron, was strong and relatively easy to work: It could be bent back on itself without breaking, could be punched, drilled, twisted, or welded, and used over and over again. The objects he made changed through the centuries: his methods of making them did not.

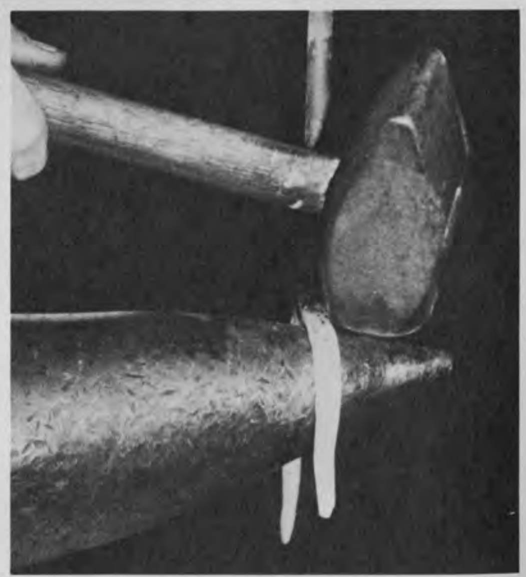
John Anderson, a blacksmith established in Williamsburg thirty years before the Revolution, notes in his ledgers that he made axes, hoes, plows, and scythes; he made flatirons, locks, keys, a rib for a griddle, and a handle for a "teakittle" for the women of the town; he dressed picks for the miller, made hoops for the cooper, forged barrels for the gunsmith, and supplied nails to the carpenter. And for the keeper of the "lunatick hospital," he contrived leg irons and chains.

What is called wrought iron today is a different and inferior substance to the iron the colonial smith worked. It was the product of an ancient smelting process which removed from iron ore impurities and carbon that would have rendered the finished product brittle and easily shattered. (Cast iron has a high carbon content; steel a moderate amount.) Slow cooling in blast furnances formed the few remaining impurities or "slag" into large crystals that arranged themselves in a horizontal pattern to create the "grain" of the iron. When the iron was hammered, the crystals were elongated and overlapped, which gave the metal great flexibility.

The blacksmith's shop where the iron was worked was filled with heat, noise, smell, and clutter. His forge, with a raised hearth and a hood above it to carry away smoke and impurities, dominated the room. To one side was a huge double-chamber bellows used to blow the fire into action—the air reached the fire in a steady stream through the *tuyere*, a pipe leading to a round hole in the center of the stone or brick bed that formed the floor of the hearth.

The fire itself was kept small and under careful control. The smith might allow a helper to collect the combustibles





but he usually laid and lit the fire himself, beginning with a pile of dry shavings placed on the clean hearth, adding kindling, and just enough hardwood to hold the fire until the charcoal (or coal), the final fuel, ignited. It was loosely laid to allow the air from the bellows to do its work. Long experience taught the smith to judge the heat of the fire from its color, which ranged from dull red to intense white, and he knew how to manipulate it in many ways to get just the temperature he wanted. His shop was often kept dark to enable him to see the changing color of the iron as it cooled.

Within easy reach of the forge, mounted on a heavy post buried in the earth to just the right working height, stood his anvil, a massive and efficient contrivance of ancient design. Its top face was a slab of cast steel welded to a wrought iron base. In the square back of the anvil, called the "heel," were two holes: the square "hardy hole" held the smith's various forging tools as he worked; the round "pritchel hole" was used for punching jobs. The other end of the anvil jutted out in the shape of a cone: this, the horn, was used for shaping curved and rounded items. Between the horn and the face of the anvil was small step of wrought iron called the "chipping block." Hot iron was laid on this area for cutting because the softer surface would not dull the shape of edged cutting tools.

The smith's everyday tools—hammers, tongs, swages, pincers, fullers, and punches—were kept close at hand. Others, many individually designed for special jobs, were scattered throughout the shop.

A heavy vise on which the smith manipulated hot iron with a twisting iron was mounted on a sunken post. He may have had a "brickern" anvil to use for round or hollow objects; if not, a "stake" of a similar shape could be fitted into the hardy hole of his regular anvil to do about the same work. There were several workbenches and a foot-treadle grindstone for the first stage in sharpening tools; a slaking tub always stood near the forge for quenching hot iron. Supplies of new iron stood in racks and every spare inch of space was stacked with scrap iron and worn-out tools waiting to be reforged.

Except for simple objects, the smith rarely worked alone, for most jobs required the help of a "striker," who stood on the opposite side of the anvil, his heavy sledge ready to hammer as the smith directed. The exacting team never spoke: the smith indicated the spot he wanted struck with a light tap of his hammer, and the striker brought down his sledge, striking the work in the same spot and at the same angle as the smith. A good striker knew as much about the craft as the smith and was able to relieve him at the forge.

Apprentices managed the bellows, fetched and carried, and coped with the monotonous task of suppling a seemingly endless quantity of nails. Some were given the questionable honor of shoeing particularly difficult horses.

The process of forging involved working the metal in a series of different ways. "Fullering" or "drawing" was used to thin out a piece of iron by hammering it, either on the face of the anvil or, for more elaborate tools, with special tools. "Upsetting" thickened or bulged the piece of iron: for example, a nail, which began as an iron rod, was "upset" on the end to form the head. The smith might use the sharp edge of his anvil, the rounded horn, or special scroll forks in "bending" iron to any shape.

The smith had several "hotsets," tools with wooden handles, for "cutting" through hot metal; "cold chisels" were used with a sledge to cut off unheated material. "Punching," the easiest method of making holes in hot iron, was accomplished by placing the iron flat on the anvil and hammering a punching tool just deep enough into the metal to mark the opposite side; the piece was then turned and the mark positioned over the "pritchel" hole of the anvil—one swift blow and the plug fell to the floor.

"Riveting" was the simplest method of joining two metal objects: a hole was punched in each of the objects to be joined, and the holes were aligned on the anvil; an iron plug the size of the hole was heated, inserted in the holes and hammered, first on one side and then on the other. In "welding," the ends of the two objects to be fused were "scarfed" (thickened slightly at an angle), heated to a near liquid state, hammered together, then filed smooth.

Tools forged of wrought iron had to be "tempered" to make them stronger. This was a two-stage process: first the finished tool was heated, plunged into cold water, and allowed to cool rapidly; the second step, "drawing the temper," was accomplished by heating the tool again and cooling it slowly. As the metal cooled, it changed color—from straw yellow to purplish blue—allowing the smith to fix the degree of hardness at any point. Here his "eye" and his feel for his material came into play, both acquired through experience and respect for his craft.

the Miller

As for grinding Corn, &c. they have good mills upon the runs and Creeks; besides Hand-Mills, Wind-Mills, and the Indian invention of pounding Hommony in Mortars burnt in the Stump of a Tree, with a Log for a Pestle, hanging at the End of a Pole, fix'd like the Pole of a Lave.

Hugh Jones
The Present State of Virginia
1724

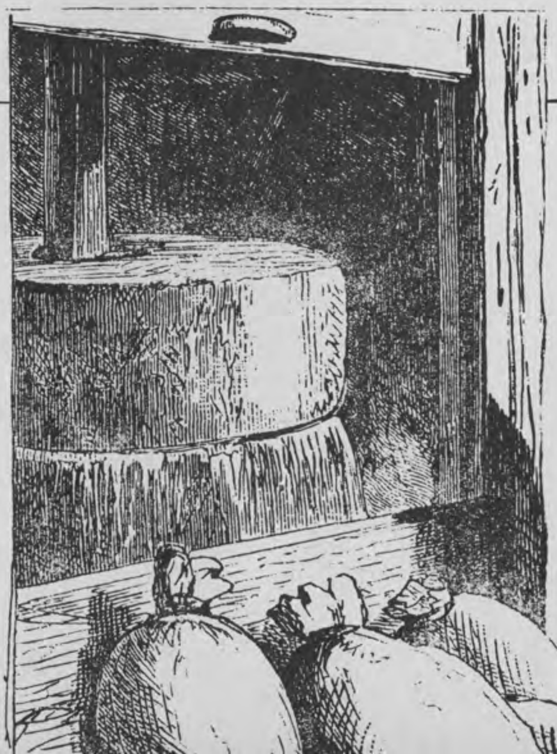
The miller has come down through history as something of a rogue. Chaucer called him sly in *The Canterbury Tales*, and said he was accustomed to stealing. His measures have been scrutinized since the Middle Ages, and in the New World, laws were passed as early as 1635 in the Massachusetts Bay Colony to keep the miller in line. Ten years later, a Virginia law was designed to "rectifie the great abuses of millers." A 1648 English statute went so far as to forbid the crafty fellows from keeping hogs, ducks, or geese near their mills, and allowed them no more than three hens and one cock.

Whatever reputation arrived before him, the miller was welcomed early in the colonies. A windmill was erected on a James River plantation in 1621; the Bay Colony had a mill by 1631, New Amsterdam had one by 1632. Plymouth Colony, having been "forced to grind their corn in motars," received a miller in 1633. (He was indicted two years later for failing to grind his neighbor's grain "well and seasonably.")

Still, millers were valued highly enough to be exempted from local militia units and fined when they took a day away from their job. The proprietor of a windmill was even excused from church when a brisk breeze blew up.

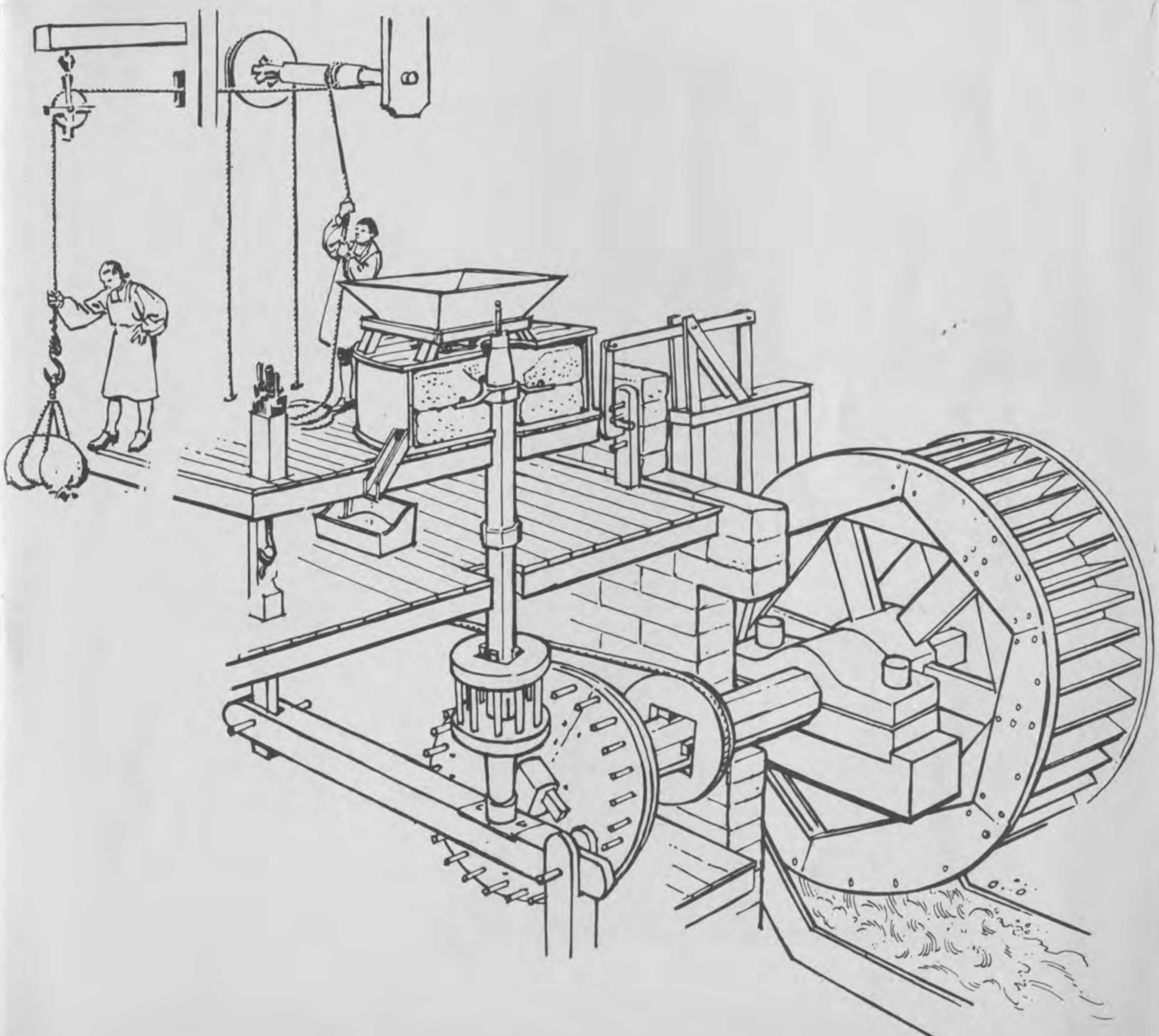
Colonial mills were powered either by wind or water and were constructed from designs dating back nearly a thousand years. Post wind mills, as the name suggests, were mounted on posts sunk deep into the ground, and the entire body of the mill—millstones, gears, shafts, grain, sails, and all—could be turned to catch the wind. They were precariously balanced and easy targets for lightening, still they have been known to last for 300 years. The tower or "smock" mill was a refinement developed in Holland: Here only the cap of the mill, to which the sails were attached, turned to the wind, and the base, which contained the heavy stones and gears, stayed fixed to the ground.

Water mills ranged from very crude "tub mills," which took power from a natural fall of water, to the most efficient and most widely used mills with "overshot" water wheels. These were powered by water directed from a stream through a shallow ditch called the "race," which emptied water onto the top of the wheel where it collected in the wheel's bucket-like blades, and its weight caused the wheel to turn. If the supply stream was small and slow running, there might be a dam to back up water over night to be released with all its stored power to work the mill by day, although it was not the swiftness of the stream, but the steady flow through the race that the miller relied upon to turn the mighty wheel, which might be as much as twenty feet in diameter. In northern climates, the wheel might be enclosed to minimize problems caused by ice in the winter.



Another version of the water-powered mill was built with its wheel "undershot," that is built over a stream with the bottom of the wheel in the water. These were easily assembled in natural stream beds, but were far less efficient. Somewhere between the overshot and undershot wheels in efficiency were "breast" wheels, which received the water at the middle of the wheel.

However their power was supplied, grist mills operated on much the same principle inside: the power source turned the wooden gears—counter wheels—that turned the grindstones to crush the grain. French burr stones were best for fine flour; ordinary granite served to grind corn, rye, and buckwheat. The stones themselves consisted of a lower or "bedstone," which was fixed in place, and a top "runner Stone," which turned to grind the grain. Both stones were grooved with sickle or fan-shaped cuts, the bedder slightly concave, the runner slightly convex. Two months or so of steady grinding tended to smooth out the stones, and they had to be "dressed," the grooves sharpened with a sharp pick called a "millbill." Itinerants sometimes performed this ear-shattering

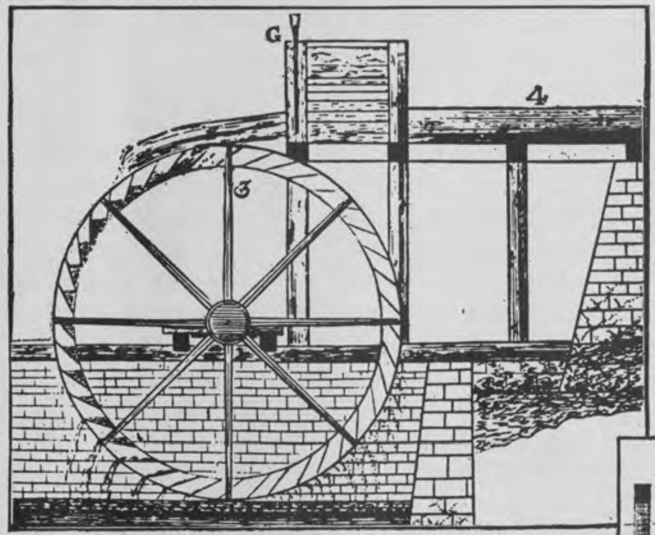


task, but more likely it fell to the miller.

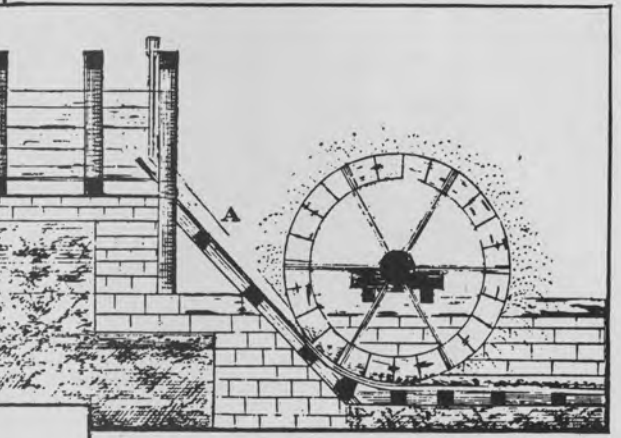
Each farmer wanted to be certain that he received his own grain once it was ground, not an equivalent measure brought from another farm, so the grain went to the miller in marked sacks. It was poured into the hopper which fed it gradually through a chute (called a "shoe") into the casing that held the grindstones. As the stones turned, the grain was ground into the grooves of the stones and moved out by centrifugal force through a chute into a meal bin where it was sifted. The set of the stones determined the fineness of the grind, and the breadth of a hair could make a difference. The miller's pay was usually a portion of the meal or flour he ground, the amount varying from town to town.

Fire was a constant threat to the miller. He used wooden scoops and shovels to avoid the danger of sparks, and kept a watchful eye on the hopper, for if it ran out of grain, the friction of the stones could start a fire.

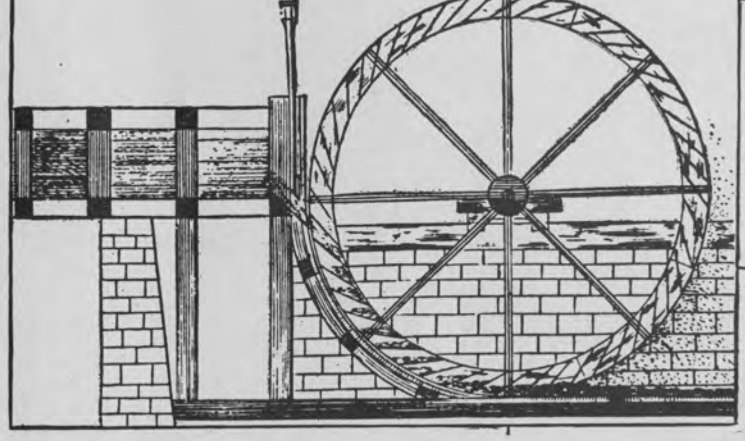
Villages grew up around mills, and they became gathering places for area farmers to discuss the events of the day, and perhaps to contemplate the character of the miller and his "golden thumb," which could judge the quality of flour by its feel and perhaps divert a portion of it to his private bin.



An "overshot" wheel is powered by water directed from a stream through a shallow ditch called a "race," which empties water onto the top of the wheel where it is collected in the wheel's bucket-like blades, and its weight causes the wheel to turn.



Sometimes mills are built directly over natural streams, and the "undershot" wheel is powered by water flowing beneath it.



A "breast" wheel receives the water at the middle of the wheel; it ranks between the overshot wheel, which is most efficient, and the undershot wheel, which is least efficient.

the Leather Workers

Depending on the animal from which it came and how it is processed, leather can be as hard as wood or as supple as silk, water-proof or sponge-like, varying in natural hue from white to tan to dark brown. Its uses are too numerous to name, from shoes and belts for spinning wheels to carriage fittings, military gear, even surgical trusses.

The importance of leather and leather works was recognized very early in the colonies. The Virginia Assembly passed laws in 1632 forbidding the export of hides, skins, and other commodities, hoping an ample supply of raw material would encourage craftsmen to produce more. Legislation passed in 1662 exempted from taxation any craftsman who followed his trade and did not plant tobacco. That same year each county in Virginia was directed to build "one or more tanhouses, and . . . provide tanners, curryers and shoemakers, to tanne, curry and make the hides of the country into leather and shoes."

There were eleven separate guilds of leather workers in 15th-century England. In colonial America, specialization was not possible except in cities. The tanner frequently served as his own currier and probably made harnesses as well; or the situation was reversed, and the leather worker did his own tanning to have a ready supply of materials.

Tanning and Currying

Hides and skins, like any organic matter, will soon decay unless they receive some preservation treatment. It can be as simple as scraping and drying in the sun or salting, smoking, and soaking in brine or slaked lime: this makes a strong, durable product—rawhide is one example—but it is not leather, for it has not been tanned. Tanning actually changes the chemical structure of the

hide, preserves it, and makes it pliable when dry, and impervious to water.

The need for leather was so great that nearly every town and village had its tanyard, located by a stream to supply the quantities of water the tanner required, and preferably at the end of town away from the wind, for it was a smelly business. Many farmers tanned hides themselves and ruined enough of them to be willing to take advantage of the tanner's services if they were available. For his work, the tanner usually got half the leather, the hair, which he sold to plasterers, and the scrap hides, which were used to make glue.

The tanner made a distinction between "hides"—the pelts of larger animals: horses, cows, buffalo, and the like—and skins, which were from smaller animals—calves, sheep, deer, pigs, beaver, rabbit, even dogs. Until the middle of the 19th century, when chrome tanning was discovered, most hides and some skins were cured by a method of tanning that involved tannin, a substance found in many plants, chief among them oak and hemlock bark, gallnuts, and sumac leaves.

Very fine, light skins were "tawed," a technique of tanning with alum that produced a very white leather.

To make the hide or skin easier to handle, the tanner split it down the middle and cut away ragged edges. It was then soaked in water to soften it. Hair was loosened by further soaking in lime water, or the wet hides were stacked and left to "sweat" for a few days. The hide was then placed on a slanting beam and scraped with a blunted knife to remove the hair and epidermis from the outer side, turned, and scraped on the flesh side to remove fat and tissue. The tanner then washed the hide and plumped up the fibers of the remaining middle layer, or corium, on the flesh side to make it more receptive to the tanning solution. The process was repeated if necessary and followed by more rinsing.

Actual tanning involved soaking the hide or skin in a series of vats, each containing a stronger solution called "ooze"—than the one before it. It was a slow process, taking several weeks for a light skin and over a year for a heavy hide. During this time, the hides were taken out of the vats and drained many times. The same process was used in tawing, except that alum was used instead of vegetable tannin. When the "feel" of the leather was right, the tanner hauled it to a stream for a thorough washing, then draped it over a rack to dry.

How leather was finished or "curried" depended on the original hide or skin, how it was tanned, and the use for which it was intended. If the currier was dealing with a piece of calfskin leather, his object was to make it soft and to give it a good surface. Starting with the wet leather, he removed any rough spots from the flesh side and, with a fluted pin, removed the yellow mold of "bloom" from the outer side. The leather was then scoured on both sides, first with a smooth stone, then with an iron tool called a "slick." A mixture of tallow and neat's foot oil was then beaten in with a mallet, and the leather was allowed to dry. The leather was finished by "bruising," that is softening it again by beating or stomping it, then rubbing and working it with the hands.

The Harness Maker

There are only two steps involved in making a harness: cutting leather into strips of the right size and shape and stitching them together. But the workmanship—choosing the right leather and meticulously cutting and stitching—make all the difference between a good harness and a poor one. During the colonial period, when every person who could afford a horse owned one, the harness maker was an important member of the community.

Crucial as harness was, the harness maker's work was rarely limited to that. Alexander Craig, working in Williamsburg during the thirty years prior to the Revolution, left behind two account books that show that he and the journeymen, indentured servants, and slaves in his employ carried on a variety of activities. He bought and sold skins and hides, acted as tanner and currier for himself and others, and in his shop produced cushions for chairs and couches, sword belts, fire buckets, leather pipes for fire hoses, razor cases, cartridge boxes, trusses, and once a "strong Coller for a Bear."

Craig's specialty, though, was making and mending saddles, bridles, and harnesses, and his account books show that he was well paid for his work. A "harness for a Single Horse" sold for £5 at a time when a good dining room chair could be bought for £2.

The harness maker's tools were simple: round and head knives for cutting leather, punches for making holes for buckles, and collection of awls to make holes for the needle to pass through as he stitched, and most important of all, a "clam," a hinged wooden clamp with jaws that vaguely resembled the shell of a clam. Holding it between his crossed thighs, the clam held the work fast, freeing both the harness maker's hands for the exacting job of stitching through heavy leather.

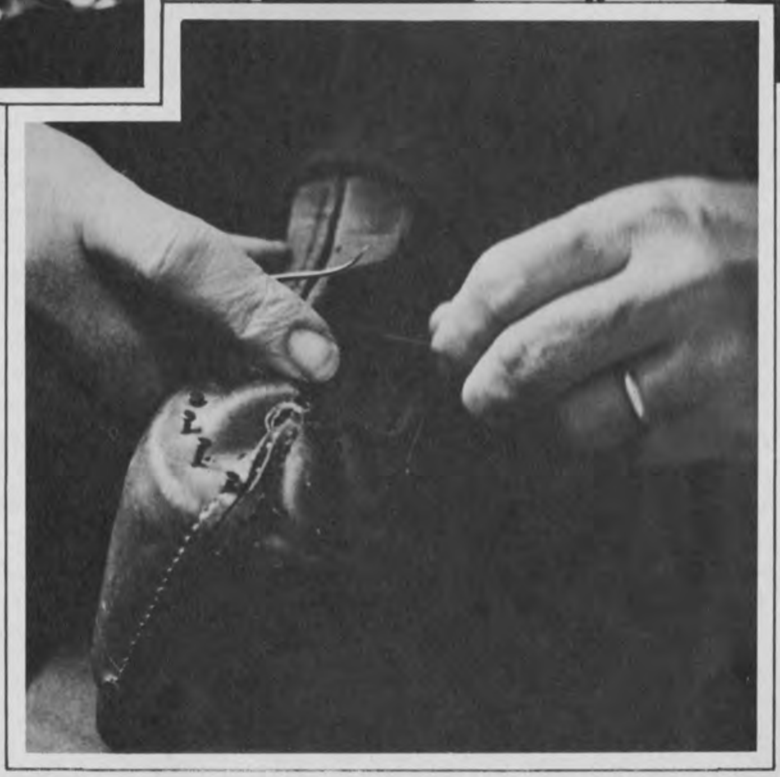
If he made horse collars and saddles, and he probably did, he would own a collar awl, which was used to stitch through the thick material of collars, and stuffing rods to push hair or straw into collars, saddles, and paddings. A pricking wheel made lines on leather for stitching and a tracing iron was used to mark grooves in leather.

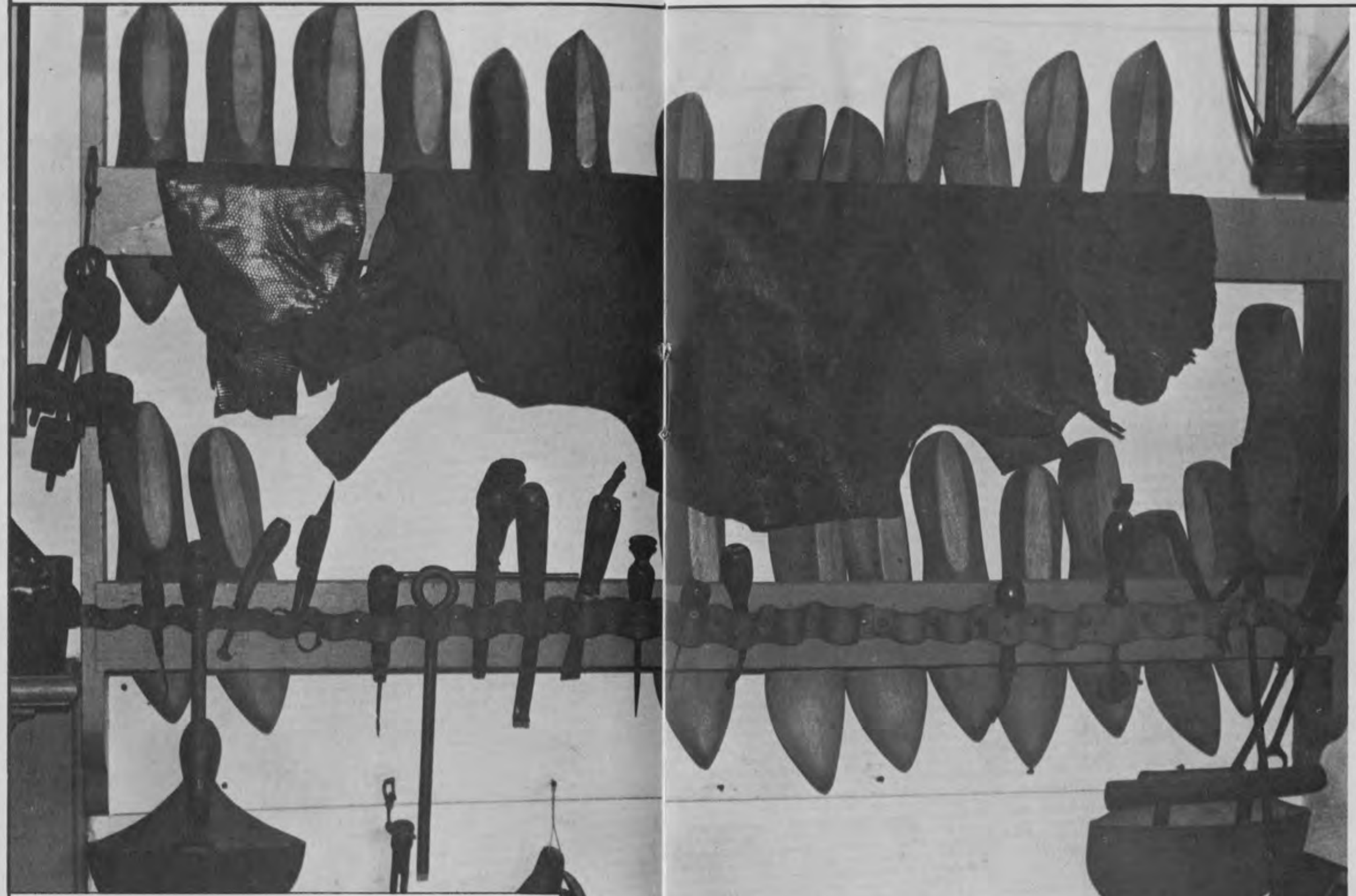
The Shoemaker

Almost any farmer could mend his family's shoes, but few were skilled enough to make anything resembling a good shoe or boot. Shoemakers or cordwainers, as they were called (the word comes from cordovan, a sumac-tanned leather, originally made in Cordoba, Spain), were much valued in the colonies. When Thomas Beard, an English cordwainer, arrived with his tools and equipment at Plymouth Colony in 1629, the community gave him fifty acres of land and paid him £50 a year for his work—no small sum at the time.

By the beginning of the 18th century, shoemakers were established in nearly every village, making shoes to order and sometimes selling shoes imported from England. In the southern colonies, plantation owners often had their own shoemakers, either slaves or indentured servants, who made shoes for the large number of people needed to work on their estates. For themselves and

In his spare time, the shoemaker fashioned other leather goods, such as mugs (above) which were water-proofed with pitch. He sewed with two threads (right), passing both through punched holes in opposite directions, an operation called "whipping the cat."





their wives and children, imported shoes were preferred. Those of John Didsbury & Co. in London were the top choice, paid for with shipments of tobacco or other commodities. In remote areas, "cat whippers," itinerant shoemakers, traveled from spring through fall repairing shoes and making new ones. Their curious name is derived from the method used to attach the sole to the upper part of the shoe: sewing with two threads, the shoemaker passed both through each hole in opposite directions, an operation known as "whipping the cat."

A shoemaker's shop was apt to be small, for he needed little room for his work bench and tools. He did need light for his precise work and likely placed his bench by a large window. A good shoemaker could turn out two pairs of shoes in a twelve-hour day; it was routine work for a practiced artisan, and left his mind free to take in the opinions of the gentlemen who were apt to stop in his quiet shop to smoke a pipe and pass the time.

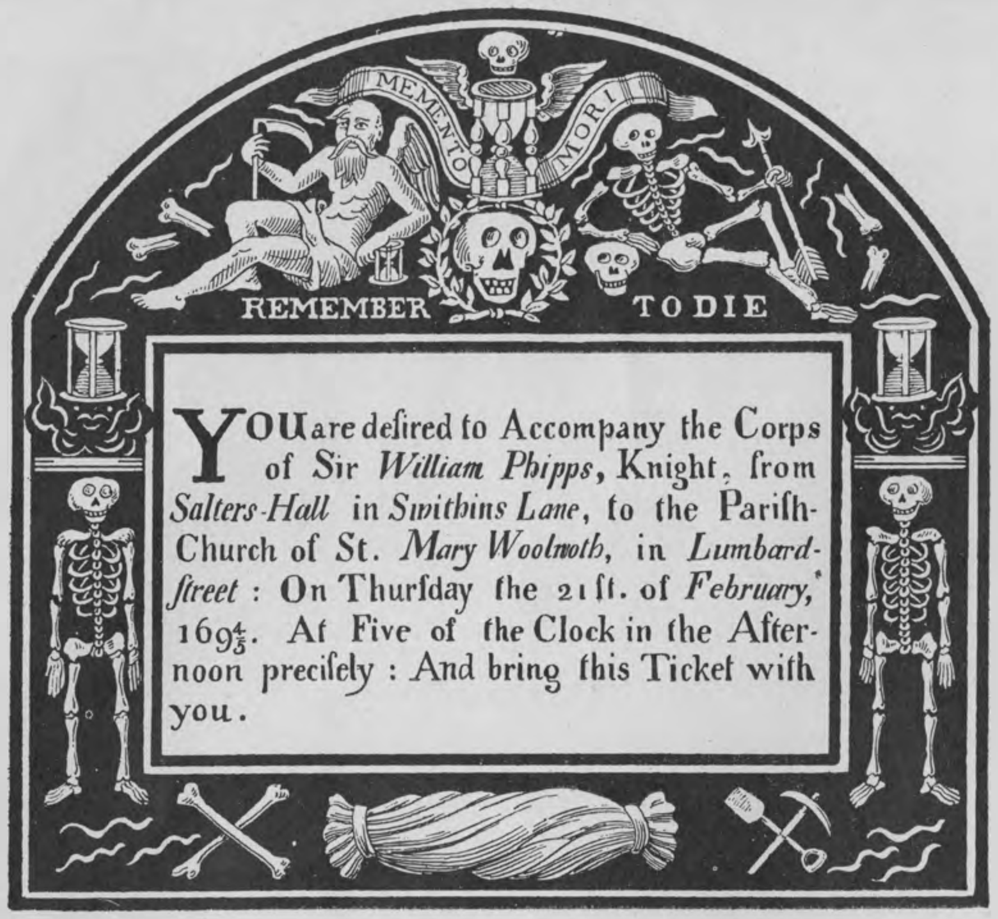
All shoes were made on a straight last: the shape and construction were the same for the left and right shoes. This was not from lack of skill but because to the 18th century eye, symmetrical shoes were more pleasing. The lasts themselves were carved out of wood and made in common sizes from measurements taken at several points on the foot. A particular customer might have his own last made to order: George Washington noted in his diary that he had ordered shoes from Didsbury & Co. made to a Colonel Baylor's last.

Men's shoes were usually black, although occasionally an 18th-century gentleman might request a color or colored heels. Buckled shoes were worn by those who could afford them—steel or brass for everyday: silver, gold, or paste for evening—but tied shoes were most common. By the 18th century, pointed toes were fashionable, but round and square toes prevailed for those willing to put comfort before style.

Shoe soles, except for evening slippers, were of heavy cow hide cut from the area over the animal's hind quarters known as the "bend." The uppers were usually of calfskin, but supple slippers for dancing were often made of sheepskin, goatskin, or, the most elegant of all, dogskin—hence the expression "putting on the dog." Boots varied from beautifully finished, light boots for riding to heavy "jackboots" for farming and long journeys.

Women too wore boots for riding, and their daytime shoes were of fairly heavy leather, often dyed in bright colors. For evening, a lady might have slippers with leather soles and uppers of fabric—ticking, calimanco, silk, damask, poplin, or satin. Pattens, high-platform overshoe clogs, protected them from muddy streets.

A child's shoes were usually cut a size or two larger than the feet, and the child's feet were wrapped in wool until they grew into the shoes. At a time when shoes cost three-quarters of an average week's wages, the decision to order them was not made lightly.


MEMENTO MORI
REMEMBER TO DIE

YOU are deſired to Accompany the Corps of Sir *William Phipps*, Knight, from *Salters-Hall* in *Swithins Lane*, to the Pariſh-Church of St. *Mary Woolnoth*, in *Lumbard-ſtreet* : On Thurſday the 21ſt. of *February*, 169$\frac{4}{5}$. At Five of the Clock in the Afternoon preciſely : And bring this Ticket with you.

the Publick Printer

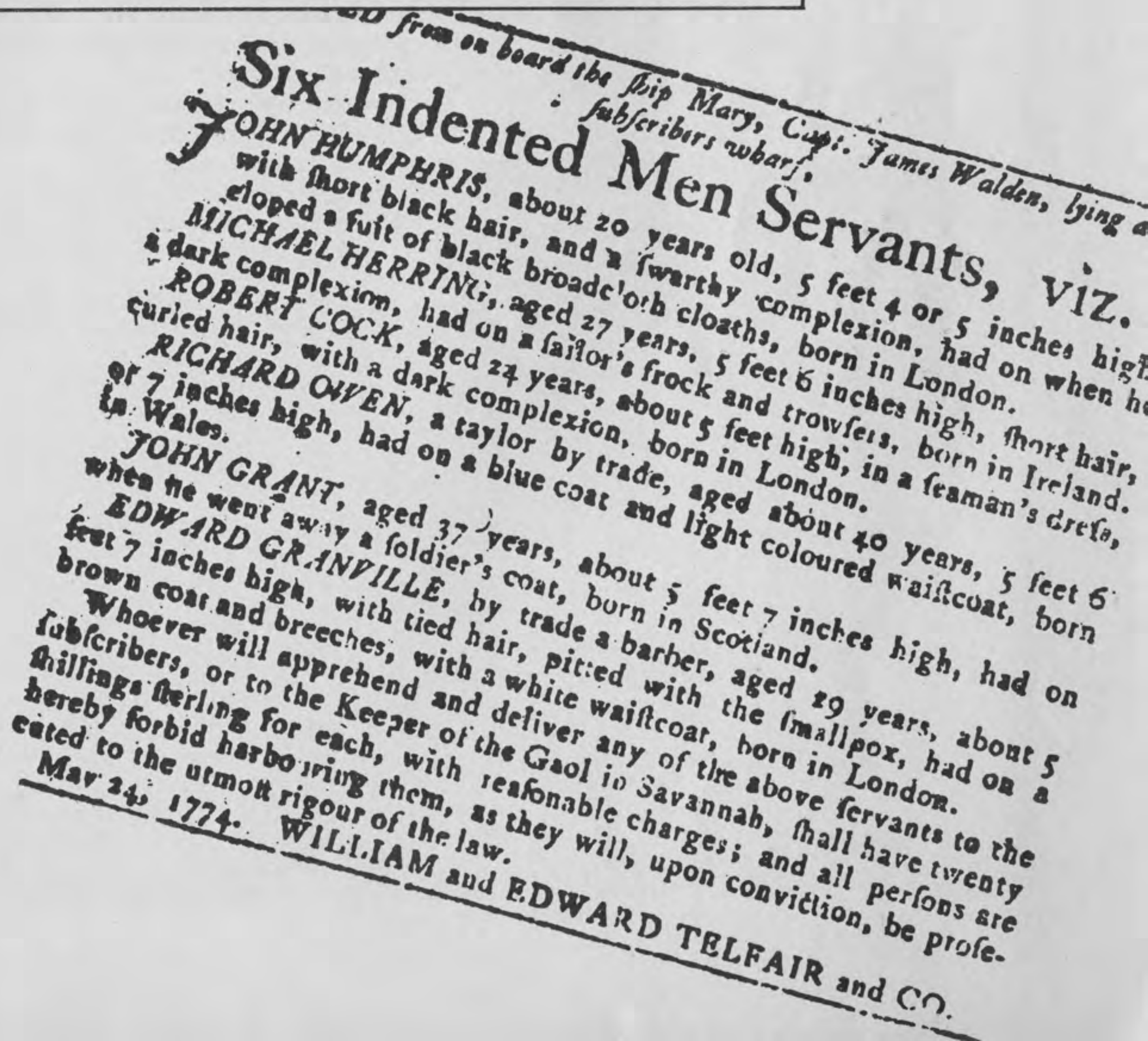
Forasmuch as great inconvenience may arise by the liberty of printing . . . you are to provide all necessary orders that no person keep any printing-press . . . without your especial leave and license.

Instructions from the English Government to Provincial Governors in America, 1668

"Freedom of the press" did not exist in colonial America. In a time when printing presses, type-fonts, ink, and paper had to be brought from Europe, when towns were far apart and transportation difficult, there was little chance of operating a press without the knowledge and consent of the government. William Bradford, Pennsylvania's first printer (1686), tried and found himself in constant trouble. His transgression seems small (calling William Penn "Lord Penn" and reporting only one side of a Quaker dispute), but the harrassment that ensued soon sent him packing off to New York, leaving Philadelphia with no press at all for the next six years.

The first printing press in the colonies began operating at Cambridge, Massachusetts, in 1639, when Stephen Day, a locksmith turned printer, pulled his first proof, an oath to be taken by freemen voters of the Bay Colony. His next efforts were an almanac calculated for New England and the *Bay Psalm Book*, both produced under the watchful eyes of the elders of Harvard College and the leading clergymen of the area. The bulk of his work that followed consisted of government forms and reports on the enactments of the General Court. Hardly exciting fare, but the first "publick printers" were not journalists, but craftsmen dealing in official information.

While the printer needed the sanction of government and found the printing of its necessary forms profitable, the best way to make money was to publish a newspaper.



from on board the ſhip Mary, Capt. James Walden, lying a
ſubſcribers wharf.

Six Indented Men Servants, VIZ.

JOHN HUMPHRIS, about 20 years old, 5 feet 4 or 5 inches high with ſhort black hair, and a ſwarthy complexion, had on when he eloped a ſuit of black broadcloth cloaths, born in London.

MICHAEL HERRING, aged 27 years, 5 feet 6 inches high, ſhort hair, a dark complexion, had on a ſailor's frock and trowſers, born in Ireland.

ROBERT COCK, aged 24 years, about 5 feet high, in a ſeaman's dreſs, curled hair, with a dark complexion, born in London.

RICHARD OWEN, a taylor by trade, aged about 40 years, 5 feet 6 or 7 inches high, had on a blue coat and light coloured waiſtcoat, born in Wales.

JOHN GRANT, aged 37 years, about 5 feet 7 inches high, had on when he went away a ſoldier's coat, born in Scotland.

EDWARD GRANVILLE, by trade a barber, aged 29 years, about 5 feet 7 inches high, with tied hair, pitted with the ſmallpox, had on a brown coat and breeches, with a white waiſtcoat, born in London.

Whoever will apprehend and deliver any of the above ſervants to the ſubſcribers, or to the Keeper of the Gaol in Savannah, ſhall have twenty ſhillings ſterling for each, with reaſonable charges; and all perſons are hereby forbid harbouring them, as they will, upon conviction, be proſecuted to the utmoſt rigour of the law.

May 24, 1774. WILLIAM and EDWARD TELFAIR and CO.

That under way, it was also expedient (and profitable) to become the town postmaster. He could then use the post rider to deliver his papers at public expense (Benjamin Franklin did for a time), and have access to news discussed at the post office, a gathering place for men of affairs. While collecting items of interest and taking down advertisements, he could at the same time offer for sale books, pamphlets, writing paper, pens, and any number of goods that might turn a penny.

In the years just before the Revolution, printers found themselves caught between the passions of loyalist and patriot sympathizers. William Goddard tried to operate a "very free press" in Providence, Rhode Island, and was forced to move three times before finally establishing himself in Baltimore. Alexander Purdie promised that his *Virginia Gazette* would "be as free as any Gentlemen can wish," but he soon managed to offend the patriots in Williamsburg and found himself faced with a fierce competitor in the person of William Rind. Thomas Jefferson later wrote: "we had but one press, and that having the whole business of the government . . . nothing disagreeable to the govenor could get into it. We procured Rind to come from Maryland to publish a free paper."

A newspaper is like a feast.
Some dish for every guest;
Some large, some small, some strong, some tender,
For every stomach, stout or slender.

New York Gazette or
Weekley Post Boy, 1770

Despite the limitations imposed on them, early newspapers were a rich chronicle of life in the colonies: government legislation was printed in full; foreign and domestic news (some taken from private correspondence) was a regular feature; letters to the editor discussed everything from fashion to science. Local news was rarely reported, although marriages and deaths were sometimes announced. It was in the advertisements that the most colorful information was to be found: notices of runaway servants, strayed husbands or wives, lost farm animals, public sales, goods arriving from England, blooded horses available for breeding, etc.

There were no pictures or headlines, but imaginative printers managed to make their pages interesting by using several sizes and styles of type set off by decorative devises called "flowers." All nouns were capitalized and *italics* were used to give emphasis to the names of persons and places of importance.

After the beginning of the 18th century, the most common type face used in English language newspapers was Caslon, which had been developed in England by William Caslon. One of the characteristics of the type was the long "s", or "ſ", which looks like an "f," but has only a half crossbar, while the "f" has a full crossbar. It was used at the beginning and in the middle of words, but never at the end. The "ſ" developed out of German script, which early German type founders attempted to reproduce as closely as possible, and it was used by English printers until the end of the 18th century. When a long "s" overlapped the following letter, the two characters were fused together into ligatures to make them easier to set and to avoid damaging the overlapping letter.

Early printers used paper made by hand from linen rags, first imported from England, and eventually bought from domestic paper mills. Because the paper was uneven in texture and poorly sized, it was dampened before being put on press to provide a more workable surface. Inks were a combination of lampblack and varnish; when red ink was used for two-color printing, vermillion was substituted for lampblack.

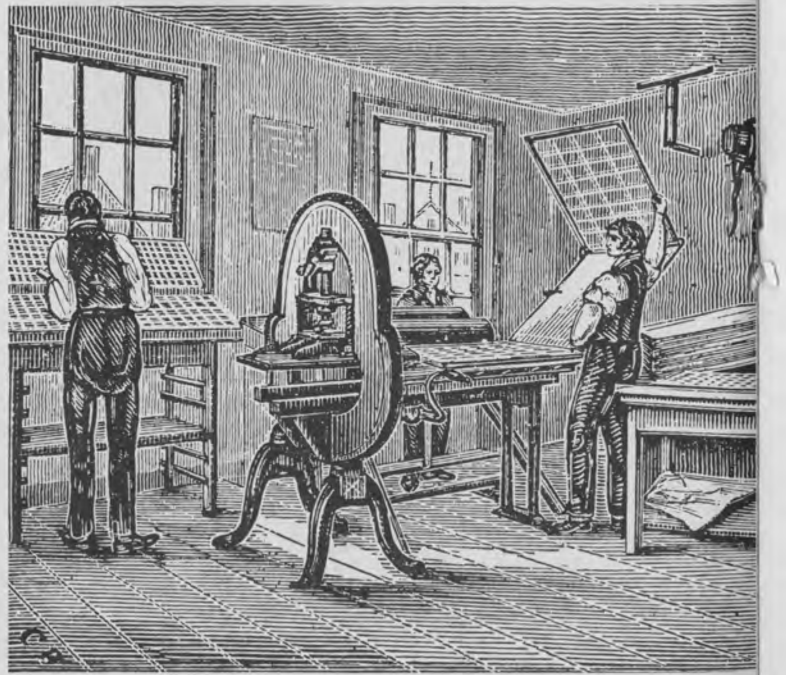
Type, an alloy of lead, iron, and antimony, was imported from England or Holland. Each "font" or size of type was arranged in a set of four wooden trays, two for Roman type and two for italics. Each tray or "case" contained partitions for each character and numeral, and was arranged so the printer might assemble type with a minimum of movement. (Because capital letters were usually placed in the upper two cases and small letters in the lower two, printer's came to call them "upper case" and "lower case," respectively.)

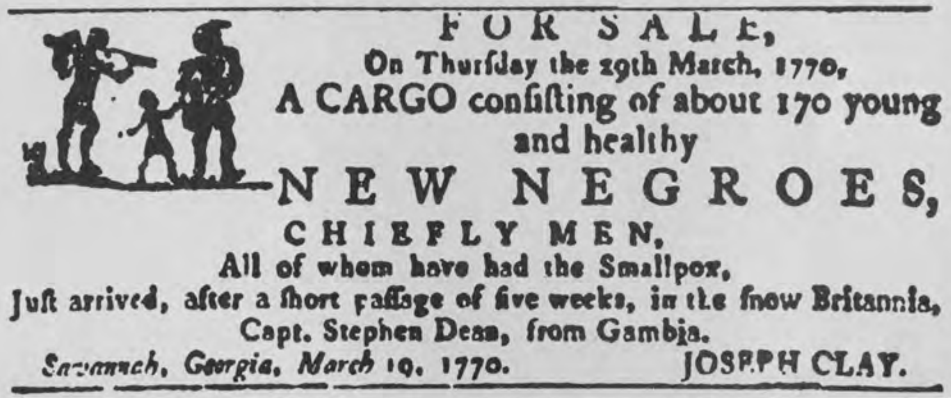
When setting up a page, the printer quickly took the necessary characters from their cases and arranged them with proper spacing on a "composing stick" set to the right line length. Once the stick was full, it was transferred to a shallow tray called a "galley," and tightly bound with string. The printer then could slide the page —carefully, for if it dropped he must begin all over again —onto a flat working surface, "the imposing stone," where it was bound with an iron frame or "chase," and locked into place with wooden blocks called "quoins." It could then be taken to the press without danger of the type falling out of place.

Colonial presses were cumbersome things. Type in place, the printer spread ink on a mixing block, rubbed it to the consistency of stiff molasses, gathered it onto two leather-covered "ink balls," beat them together to distribute the ink, then rapidly transferred the ink to the type. Damp paper was then placed in a frame on the bed of the press where the type was locked in place. The impression was made by rolling the bed of the press under the "platen," which was suspended from a large metal screw. By turning the screw, the printer pressed the paper firmly against the inked type.

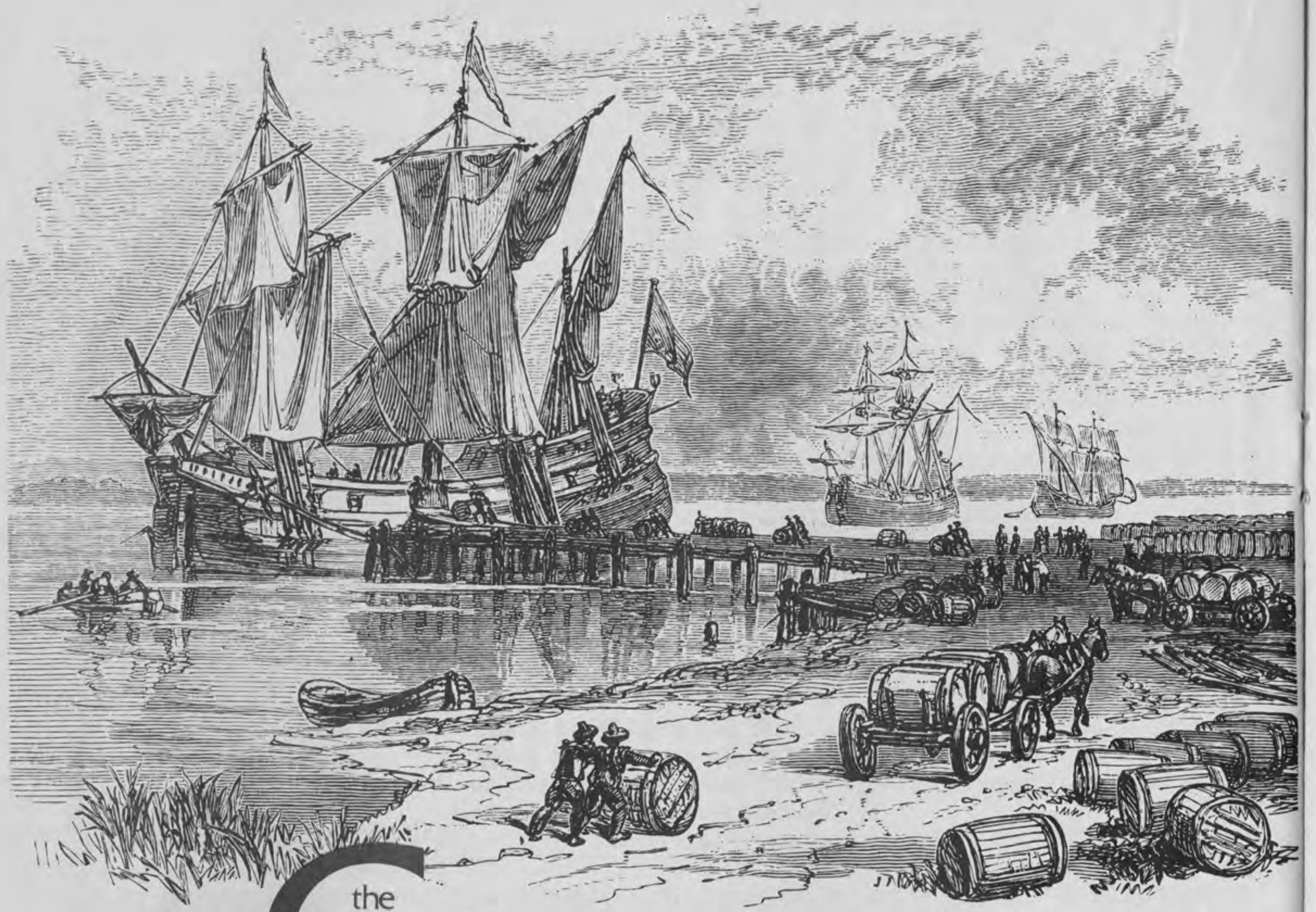
Two experienced pressmen, working at top speed, could turn out a "token" or 240 printed sheets in an hour. It was heavy work, not to be maintained for long; 200 sheets an hour was a more realistic output.

Once a job was finished, the printer's apprentices—"devils"—had the monotonous chore of sorting all the used type and returning it to its proper case, always "minding their p's and q's."





FOR SALE,
On Thurſday the 29th March, 1770,
A CARGO conſiſting of about 170 young
and healthy
NEW NEGROES,
CHIEFLY MEN,
All of whom have had the Smallpox,
Juſt arrived, after a ſhort paſſage of five weeks, in the ſnow Britannia,
Capt. Stephen Dean, from Gambia.
Savannah, Georgia, March 10. 1770. JOSEPH CLAY.



the Cooper

A perfectly constructed barrel follows a design that predates the biblical era and will last for over seventy-five years. Barrels can be made in nearly any size, stacked for compact storage, and can be used to hold anything from molasses to gunpowder; their rounded sides make it possible for one man to move a barrel of enormous size without help. Barrel staves were among the first exports from the colonies, and coopers were among the first settlers to arrive. Within a short period of time, even small villages had enough work to support at least one cooper.

The cooper's method of working was both simple and ingenious. Without nails or glue, he could fashion a barrel that was both strong and water-tight. For a "wet" barrel, oak staves of one-inch thickness were best. The cooper worked on a shingle horse, and with two drawknives, one convex and one concave, he shaped the outside and the inside of the staves. Their sides were then roughed out with a plain drawknife. The precision and the need for a practiced eye came when he transferred the stave to his jointer plane, which was about five feet long and fixed sole-up, in place with its blade set at an angle: Moving the work along the flat sole part with the slightly protruding blade he trimmed and beveled the staves to conform to the radii of the barrel.

The finished staves were then assembled in a truss hoop, which was adjustable, and held to size by pegs fitted into matching holes. He passed a windlass around the top staves and drew them together to tighten the staves one against the other; the top hoops were set in place and forced down with a mallet to secure the staves. The earliest hoops were hickory, chestnut, or some other flexible wood, which was ripped with the grain to a one-inch thickness. The hoops were notched on opposite ends, so that when they had been wound around the barrel, the cooper could lap them together and tuck the ends between the hoop and the barrel to keep them in place. Later, iron hoops were used to keep wet barrels tight. The tops of the staves were then trimmed and smoothed with a sunplane, which had a sideways curve. The barrel was then up-ended and the process repeated.

With a special cutter called a howel, the cooper beveled "chines" on the inner edges of both ends. A V-shaped groove called the croze was then cut just below the chine to receive the barrel head.

The cooper doweled boards together, marked off two circles with a compass, and sawed out the rough heads. The heads were then beveled all around on both sides and sprung into their crozes with swift mallet blows. All that remained was to cut a bunghole in one head and possibly a spy hole in the side of the barrel. These he bored with a cross-handled auger, reamed them to a taper with a pod auger, and fashioned plugs to close them.

Dry or "slack" barrels, which held grain, cornmeal, flour, and the like, were fashioned in much the same manner, except that they could be thinner and made of softer woods such as birch or cedar, and one end of the barrel was removable.

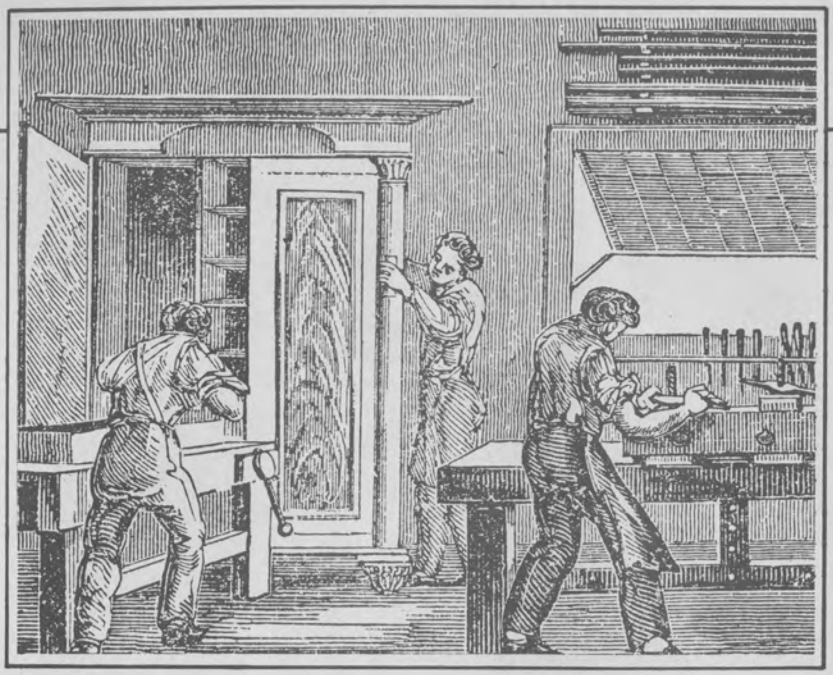
The cooper made kegs to hold gunpowder and rum, and assembled any number of tubs, pails, and piggins, which had one stave left longer than the rest to serve as a handle. He might also make butter churns, grain measures, covered buckets called firkins—even sieves and drums.

Increasingly profitable tobacco crops in the South created a demand for hogsheads, cylindrical containers used to store tobacco. They were not difficult to make, lacking the bulge at the midriff that makes the barrel such a unique container, and slaves were often taught to make them. Plantations also required skilled coopers to make barrels that were sturdy and tight for their other exports—rice, indigo, turpentine, rosin, salt meat, and molasses.

Farmers in the North and in the Middle Colonies needed

the cooper's craft as well. While they could fashion storage containers from hollowed-out tree trunks, called "gums," barrels were lighter and more practical. Many farmers fashioned barrel staves during the winter months to exchange for the cooper's work in the spring.

Need for the cooper's craft did not stop with the farmers and the shippers: his work was found in nearly every kitchen, cellar, barn, mill, shop, and tavern throughout the colonies. The tradition of quality, carried over from the cooper's guild, was so rigid that a cooper who made a faulty barrel was obliged to replace it.

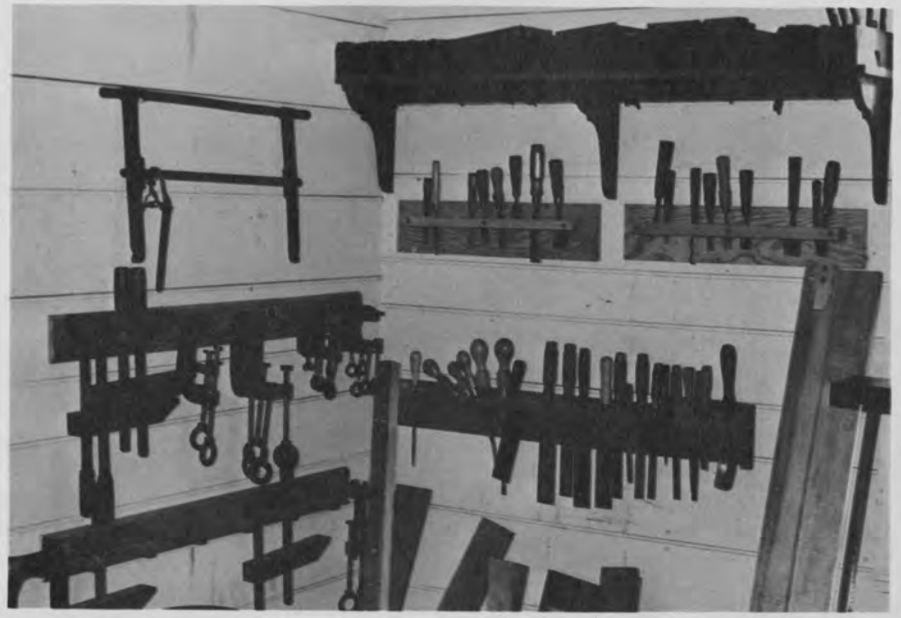


the Cabinetmakers

Williamsburg cabinetmaker Edmund Dickinson submitted a bill to the estate of Col. John Prentice in 1775 for services provided over a three year period that included setting up bedsteads, cleaning chairs, putting on a lock, mending a mahogany table, and, finally, making "a Coffin lined throughout for himself & my attendance."

This range of work was typical of the cabinetmaker in a small town or village, where the need for a variety of skills forced him to wear many hats. He was called upon to build stairways, window frames and sashes, mantels, and to panel room ends—all tasks that would have been undertaken by a joiner in England. Likely he made all types of simple furniture—chairs, beds, desks, chests, mirror frames, even toys—to order and for sale in his shop. If his ambition went beyond this multitude of jobs, he had to move to one of the larger cities where there was wealth enough to create a demand for fine furniture.

Benjamin Randolph was first known in Philadelphia as a joiner, but by 1767, when he opened his shop on Chestnut Street, he advertised himself as a cabinetmaker.



He increased his skills to include carver, gilder, and eventually merchant, and he achieved sufficient renown to receive commissions from Thomas Jefferson, including the desk on which the draft of the Declaration of Independence was written.

Most American furniture followed English styles, but at times acquired regional characteristics in the hands of individual craftsmen who were trained in different parts of the country. Graceful Queen Anne furniture came into vogue after 1725 and was followed by the more decorative Georgian pieces. The greatest influence during the third quarter of that century was Thomas Chippendale, whose book, *Gentlemen and Cabinetmaker's Director*, published in 1754, found its way into many colonial cabinetmakers' shops. His name is loosely given to much of the fine furniture made during this time. It was an elaborate style which challenged the skill of the most advanced carver and used to great advantage the "queen of woods," mahogany. (Curiously, the ball-and-claw foot associated with this period did not appear in Chippendale's book.)

Ostensibly English in origin, but also known in Central Europe, the Windsor chair found its greatest popularity in America, where it was made by country and city artisan alike. It was comfortable, lent itself to a great variety of designs, and was relatively easy to build. Versions of it appeared in simple country houses and in the homes of the affluent. Windsor chairs were a part of the furnishings in taverns, at Mount Vernon (Washington ordered two dozen at one point), and in Independence Hall.

Two families of cabinetmakers working in Newport, Rhode Island, the Townsends and the Goddards, contributed a style of desk and chest that was unique to America: the pieces were characterized by their "sweled" or block fronts and beautiful scallop shell carvings.

During the 1770's, when the impending Revolution caused the colonists to reject most English influences, the delicate work of the Adam brothers, which was so popular in London, was rarely reproduced in this country. However, once the war was over, American cabinetmakers looked again to England and interpreted the designs of George Hepplewhite and Thomas Sheraton, which set the fashion until well into the 19th century.

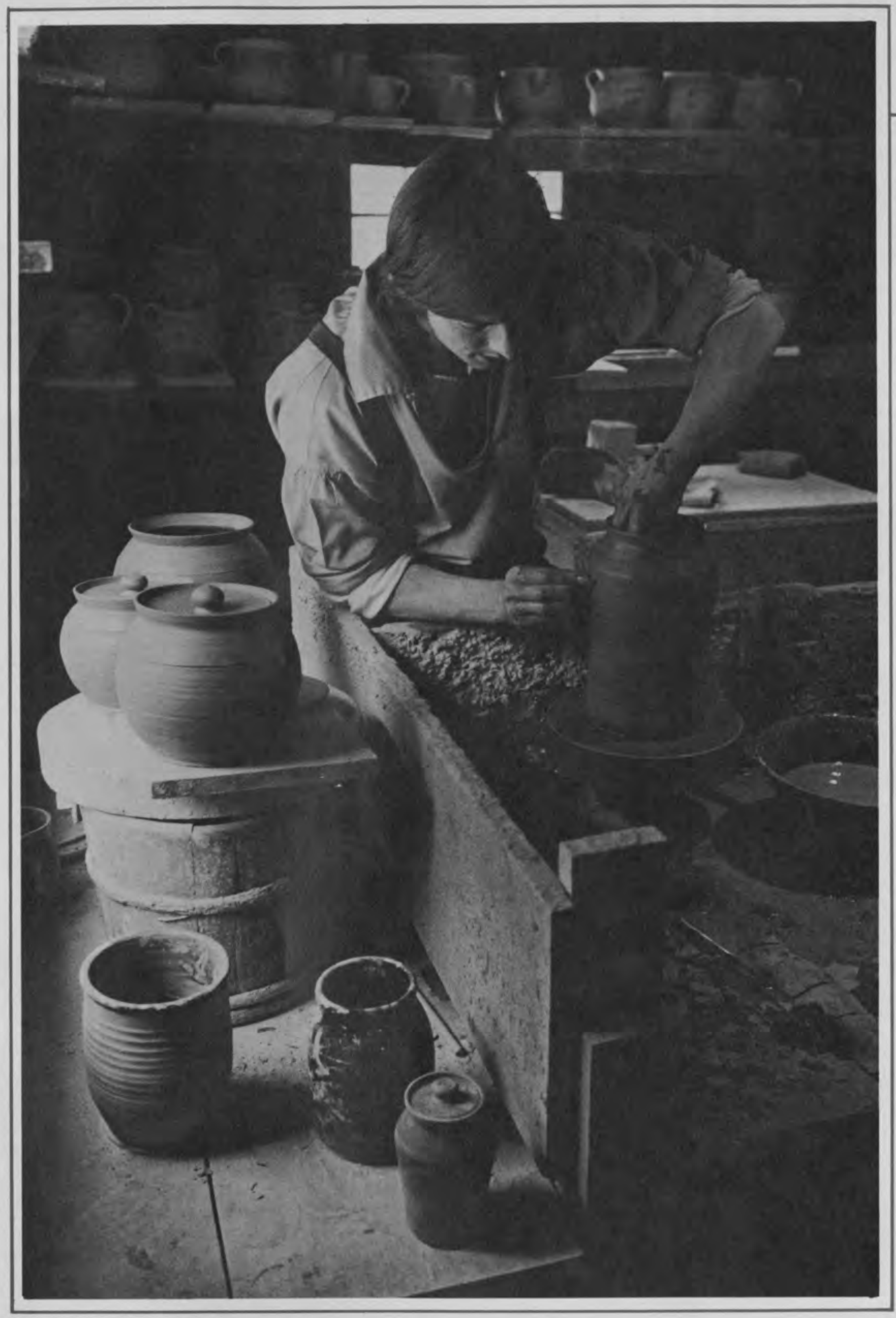
From the beginning, colonial cabinetmakers had an ample supply of good hardwoods available to them. Black walnut, with its beautiful grain and rich color, was favored throughout the colonies; from Connecticut down through the South, wild black cherry was put to excellent use; maple in several varieties was used extensively. Mahogany was imported from Jamaica and Honduras after 1725, although its high cost and the availability of native hardwoods limited its use. Oak, cedar, hickory, elm, and other hardwoods were used to a lesser degree. Pine, because it was plentiful and easily worked, was made into simple furnishings and used extensively for interior paneling.

Despite the abundance of hardwoods in most areas, they were rarely used for the parts of furniture that did not show; rather secondary woods—chestnut, pine, tulip poplar, and sometimes maple were employed.

The cabinetmaker's method of working varied from country to city in the number of skilled people he had helping him and in the variety of his tools. A man working alone in a small village might have only a workbench and a vise, saws, a few planes, chisels, gouges, hammers, mallets, a brace and bit, files, and some clamps. If he had a lathe, it was likely of the primitive boom or treadle sort, although some water driven lathes were known. His city counterpart, if he was engaged in producing fine quality furniture, had a greater selection of tools, many of them imported from England (one inventory listed eighty-one different planes). If he did his own turning rather than sending it out to a specialist, he probably would have had a large wheel lathe, capable of great speed when turned by a strong apprentice. If he did his own carving and upholstering, he would have special gouges, knives, and a great supply of brass tacks, all imported from England.

The colonial cabinetmaker did not use nails except occasionally for attaching moldings, and then they were so fine as to be barely discernable. The other exception was the use of large nails to attach back boards. He did use glue—heated animal glue, which was smelly and difficult to work because it set so quickly. Screws were used sparingly (they were handmade, probably imported, and certainly expensive) to attach braces, cleats, and hardware. His most common methods of joining two pieces of wood were the mortise and tenon, which was used to fasten structural members at right angles, and the dovetail, which held together sides of chest, drawers, and the like. Other joints—butt, rabbet, lap, tongue and groove, mitre, dado, and dowel—were used in various combinations when needed.

The cheapest finish for furniture was paint, and it was generally used on simple objects made of inferior or scrap wood. For a piece of fine furniture, the cabinetmaker prepared the surface of the wood with planes and scrapers; toward the end of the 18th century, he also used sandpaper and glass paper. He filled in the pores of coarse grained woods with powdered chalk or plaster of Paris, and sometimes used stain to enrich the color. Oil, wax, and both oil and spirit varnishes were preferred finishes, for they produced a smooth, hard surface that was long lasting and showed the grain of the wood.



the Potter

Pottery was made in the colonies wherever there was clay, and it was made as soon as the settlers could organize themselves to produce the much needed utilitarian items they had not been able to bring with them on crowded ships. Jamestown had a potter working by 1625; Salem, Massachusetts, acquired a "pot-baker," one William Vincent, in 1635, and he was joined a year later by another potter, John Pride.

As the country developed, large towns supported several kilns and a number of potters; even rural communities usually had a "pot house" operating at least part time to produce the jugs, crocks, bowls, cups, and plates needed for everyday use. These part-time craftsmen, sometimes called "bluebird potters," usually worked when bad weather made farming impossible and peddled their wares in the surrounding countryside. In the New England area alone, over three hundred potters are known to have worked before 1800, many of them passing their craft on to their descendants, generation after generation, as their forebears had in Europe.

Members of the Bayley family worked and prospered as potters in Essex County, Massachusetts, for over a century. Joseph Bayley noted in a 1735 inventory that he owned "half a kiln house and kiln utensils," perhaps indicating that he had already taken a son into the business. The presence of three potter's wheels suggest that a third potter might have worked on a part-time basis. Clues to his son Daniel's success in the operation turn up in a later inventory which showed that he owned "Jacketts of black velvet, broadcloth, linen, and fustian" and that, among other items of apparel, he possessed "two wigs in a box," this at a time when most wardrobes were at best scanty.

The great majority of early pottery was redware made from common glacial clay, the same as that used for brick. A potter needed little equipment to produce this simple ware: a horse-drawn mill for grinding and mixing the clay, a homemade kick wheel, a few wooden tools, and a simple kiln. The clay was mixed to a proper consistency in the mill and stored in balls until ready for use. It was not usually washed (as in modern practice), although pebbles and large debris were removed by hand. Before it was ready for the wheel, the clay was "wedged," that is, worked by hand to eliminate air bubbles and to develop a smooth consistency. It was then cut into sizes approximate to the utensil to be made.

The potter placed a lump of clay on the center of the revolving wheel, wet it and his hands with water, and forced his thumbs down into the revolving clay, while his fingers guided the outside. His skill and his experience determined the outcome of the product as he shaped the ever-turning clay with his hand or with templates. The completed object was removed from the wheel by passing a wire between it and the wheel top and carefully lifting it to a board to dry—out of doors in the summer, near the kiln in the winter.

Redware was porous and chipped easily, and even glazed pieces were prone to "sweat" if liquids were left standing in them for a long time. The glazes—compounds of sand, powdered lead, and water—produced a glassy surface when fired, but it was easily damaged by acid and its lead content made it potentially dangerous to maker and user alike. Common colors ranged from red to brown, although black could be achieved by adding manganese oxide and green by including copper filings. Mottled effects resulted from impurities in the glazing substance. If the piece was to be glazed only on the inside, the glaze was poured in, swirled around, and the excess drained out; for an all-over glaze, the piece was dipped.

Most redware was intended for utility rather than asthetic appeal, and most pieces were not decorated. Still the potter's imagination is sometimes revealed in simple designs scribed into the wet clay or in flowing patterns made by trailing slip (a fluid mixture of light colored clay and water) from a cup onto the piece before it was fired. Some potters, especially in Pennsylvania where German settlers held longer to Old World ways, used a technique called sgraffito, which had originated in Italy and spread to Switzerland and Germany, to embellish special pieces. For sgraffito, the entire piece was

glazed with slip and designs were scribed into the wet clay before firing, exposing its red interior. Since most sgraffito pieces were made as gifts or for display, a great number have survived intact, some pieces dating back to the early part of the 18th century.

Concern over the danger present in the use of lead glaze on redware ("it becomes a slow but sure poison . . . enfeebles the constitution, and produces paleness, tremors, gripes, palsies, &c.") and the discovery of suitable clay deposits led to a rise in the popularity of stoneware in the last half of the 18th century. Stoneware differed from other ceramics in that it was glazed by vaporization: After a piece was placed in the kiln, and when the heat was intense, common salt was thrown in from above and the resulting vapor settled on the surface of the ware, forming an exceedingly hard coat so transparent that it would not obscure the finest markings. The surface of salt glazed stoneware, unlike redware, was impervious to water and able to resist the corrosiveness of acid.

The technique lent itself to a variety of objects, from teapots, dishes, and crocks to fanciful ornaments. It could be decorated by scratching designs into the unbaked clay and filling them in with color; in utilitarian pieces, the scribing step was often eliminated and the color—most often cobalt blue—was brushed directly onto the piece.

True porcelain, although attempted on several occasions, was never successfully manufactured in the colonies because of the high cost of production and because those able to afford fine china were accustomed to importing it from abroad. One New Jersey enterprise was set up in 1684 before the promoter discovered there was "noe clay in the Country" suitable for producing porcelain. (There was, of course, he just failed to find it. White tobacco pipes were made in Philadelphia as early as 1690, and Andrew Duche found kaolin—white china clay—in Virginia in 1738.) Gouse Bonnin and George Anthony Morris attempted to reproduce English porcelain in their Philadelphia factory and announced their "first Emission of Porcelain" in 1771. Just how much they produced is open to question, although one sauce boat, soft paste but nevertheless porcelain, still exists as evidence of their efforts.

In the years before the Revolution, good white pottery called creamware, salt glazed like stoneware, was widely produced by colonial potters. It was available in a great variety of tablewares, and while it was not so fine as true porcelain, it was "a good product, not very different from Queensware," which had been created in 1767 by Josiah Wedgwood in England and named for Queen Charlotte.

The Moravians working in Bethlehem, Pennsylvania, and at Wachovia in North Carolina made fine pottery, which competed with the best imported wares and was not limited to conventional shapes. Brother Gottfried Aust's diary notes that they fired their first stoneware in 1774. Their skill was so great that when a competition among local industries was planned by the provincial congress at Hillsboro in 1775, requests were received to "debar the Moravians, for they would win all the premiums."

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the Glassblowers

The Fier hath now been six weeks in ye Furnace, and yet nothing effected. They complain that ye Sand will not run. . . . Mutch hath beene my Truble herein.

George Sandys
Jamestown, 1623

Hoping to capitalize on the growing demand for glass in England, the London Company sent "eight Dutchmen and Poles," including some "glasse-men," to Jamestown in 1608 to establish a glass works. Little is known of the venture, except that it was hindered by starvation and fights with the Indians, and that it lasted less than two years. A second effort in 1623, this time employing experienced Italian craftsmen to "sett upp a Glass furnace and make all manner of Beads and Glasse," apparently fared no better, for records suggest that little if any glass was actually made.

There were scattered attempts at glassmaking throughout the colonial period, but no operation of note until 1739, when Caspar Wistar brought four skilled artisans from the Palatine to establish a glassworks at Alloway in South Jersey. Wistar, an enterprising Bavarian, went to great lengths to play down his business, knowing that the British were not amenable to competition for their exports: His advertisements stated that he offered only coarse window glass for sale, yet his private ledger shows that three kinds of glass, including "white" or clear glass for luxury items, were made at Alloway. The skill of Wistar's Palatine artisans is attested to by the contract they arranged with him. Wistar paid their passage to America, furnished them with food and servants, supplied all tools and materials, and gave them one third of the profits.

After Wistar's death in 1752, his eldest son, Richard, carried on the prosperous business at Wistarberg (as the glassworks came to be called), still hedging with the British about the quality of his products. As a Tory, he doubtless got some political favors when the Townshend Acts, which placed an import duty on glass, were about to be enforced. Benjamin Franklin's Tory son, William, then Royal Governor of New Jersey, wrote that the factory turned out "a very coarse Green Glass for windows used only in some of the houses of the poorer Sort of People" and that it was not likely to offer much competition to imported wares.

Just when Wistar ceased production is uncertain. Likely it was in the early years of the Revolution when many workers volunteered or were conscripted into militia units. Richard's Tory politics landed him in prison in 1779, and the glassworks was advertised for sale in the fall of 1780, a year before his death.

The only other colonial glassmaker of note was Heinrich Wilhelm Stiegel, self-styled "Baron von Stiegel," a flamboyant German who came to Philadelphia in 1750 and quickly prospered as an ironmaster. He built a glasshouse in 1763 and, taking advantage of the widespread boycott of English goods after the Stamp Act was passed in 1756, expanded his operation to include a large factory at Manheim, Pennsylvania, a town he and his partners had planned and laid out. His American Flint Glass Works, completed in 1769, produced luxury items which were marketed as far away as Boston and New York. During his best years, he employed as many as 130 men—skilled Venetian, German, and English craftsmen—who created a variety of fine glass, both clear and in brilliant colors. Some of the work was engraved or enameled in the bright colors that have come to be associated with Stiegel-type glass.

Stiegel's lavish style of living—he maintained three mansions fully staffed with servants—coupled with a crippled economy led him to bankruptcy and, in the fall of 1774, caused him to be sent to debtors prison. His factory closed, putting an end to glassmaking on any scale until John Frederick Amelung opened his factory near Frederick, Maryland, after the Revolution.

While tools and the composition of glass have been refined, the basic method of making and decorating it has not changed in 2,000 years, although not all methods have been in use at all times. Glass is primarily made of silica, which is found in sand, to which other ingredients are added. (Soda and lime, along with "cullet," fragments of old glass, are the most common additives.) The quality of the molten glass, called the "metal," is determined by the purity of each ingredient, the proportion of one to another, the degree of heat to which it is subjected, the length of the "cooking" time, and the manipulation of the molten glass. Even slight variations affect the ultimate appearance of the glass, and each glassworks had its own jealously guarded formulas.

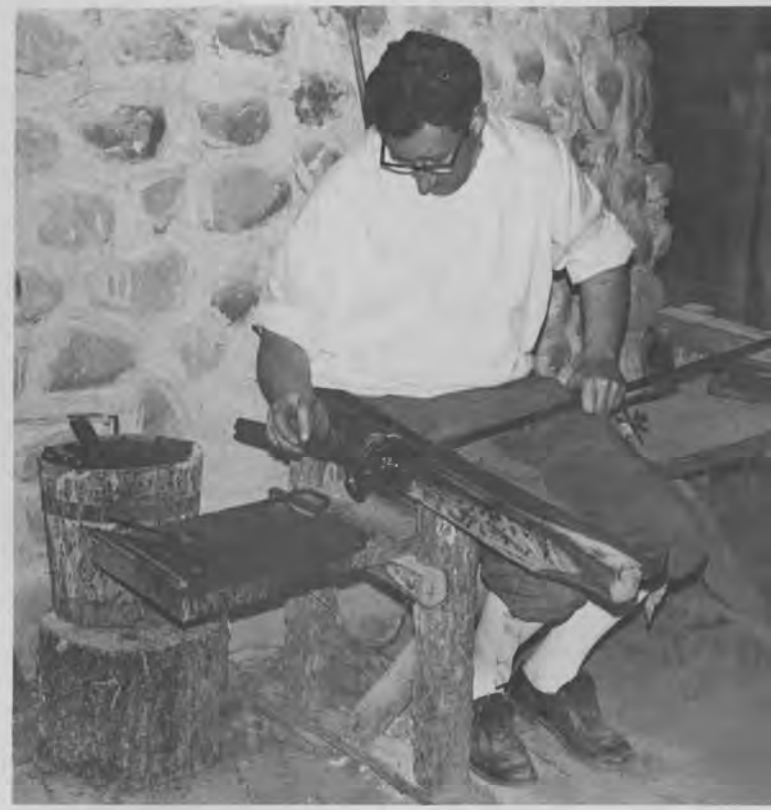
Making glass was a team effort, requiring skill and precision. The process began with "fritting," fusing the raw ingredients in a furnace called a calcar. The resulting "frit" was then "cooked" in carefully made clay crucibles and impurities were skimmed off. Once it was "done" (common glass might take twelve hours, fine glass six times that), it was allowed to cool off until it reached a plastic state and was malleable.

Then came the team effort: A worker collected a "parison" or "gather" of molten glass onto the end of an iron blowing pipe, partially shaped it on a polished surface called the "marver," and inflated it by blowing it into a workable size. The pipe was then passed to the master craftsman or "gaffer" who sat at a special chair with slanting arms on either side. If the glass was to be free-blown, the gaffer rolled the pipe on the arms of the chair to keep the symmetry of the glass and, with his other hand, formed it using metal tongs and a wooden paddle to flatten the bottom. If the glass cooled too quickly, it was returned to the "glory hole," the mouth of the furnace, to be reheated. In the hands of a skilled gaffer, the glass could be worked into nearly any shape, and other pieces such as spouts or handles could be added to it. Another worker dipped a metal rod called the "pontil" or "punty rod" into molten glass and placed it against the bottom of the piece being finished, where it stuck. The glass was then removed from the blow pipe by touching the wet ends of the tongs to the glass causing a fracture; the glass could then be tapped free from the blowpipe. With sheers and shaping tools, the end was then worked into its final shape.

When making crown window glass, a gather was blown into a thick bubble, which was transferred from the blowpipe to the pontil. The worker rapidly whirled the glass before the furnace and the hole left when the blowpipe was removed opened larger and larger until the glass became a flat disk. The thin edges could then be cut into small panes of glass and the thick middle, the "bullseye," could be used for small areas to let in light where visibility was not required.

Glass could be blown directly into a mold, either full-size or smaller, in which case the glass was further inflated to achieve its final size. However it was made, no piece of glass was complete until it had been reheated and cooled slowly in an annealing oven, for too rapid cooling would cause the glass to crack.

Despite the small number of sizeable glassworks, a great variety of glass was produced in America during the 18th century, ranging from such utilitarian items as bottles and window glass to pitchers, covered bowls, and wine glasses. While experts can recognize old glass by its "bloom," the patina acquired from exposure to air and light, it is seldom possible to attribute a piece to a specific maker without documentation. Also, glassmakers tended to be a wandering lot: Over the decades the descendants of Caspar Wistar's four Palatine artisans went out to New York and Pennsylvania, as far west as Ohio, and as far south as Kentucky. Nor were apprentices always content to stay in one place, and advertisements for runaways were frequent. Richard Wistar offered a twelve dollar reward for the return of one delinquent in 1767, noting that he took with him a fiddle "upon which he is much addicted to play."



The end of the American Revolution signaled great changes in the lives of individual craftsmen who had previously found that practical needs forced a merging of their skills: They had learned to be versatile or to go hungry.

Freed from the restrictions of colonial rule, the new Americans were caught up in a spirit of nationalism that challenged them to take advantage of their seemingly endless natural resources to enrich themselves and to establish their country as a force to be reckoned with in the world market. Skilled artisans were able, more and more, to specialize and to take advantage of mass-production techniques.

Cities increased in size: The population of Philadelphia swelled by fifty percent in ten years, and Salem grew from a small Massachusetts fishing village to a center for wealthy New England shippers who traveled to the far reaches of the world, bringing back hard cash to capitalize new industry. A flurry of scientific experimentation produced new labor-saving devices that increased production and profit. Moses Brown financed America's first cotton spinning mill in 1789, and others followed soon after, heralding the beginning of the greatest industrial expansion the world had seen and relegating to the past the tradition of the individual craftsman working alone.

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